

IN THE CLAIMS:

Please note that all claims currently pending and under consideration in the referenced application are shown below, in clean form, for clarity.

1. (Previously Amended) A method of molding a semiconductor assembly comprising: providing a transfer mold having an inner surface defining at least one mold cavity; providing at least one semiconductor substrate having at least one surface with conductive elements thereon and a back surface thereof; positioning said at least one semiconductor substrate in said at least one mold cavity of said transfer mold so that portions of said inner surface of said transfer mold abut with said conductive elements of said at least one surface of said at least one semiconductor substrate and another portion of said inner surface abuts with said back surface of said at least one semiconductor substrate; and introducing a flowable material onto said at least one surface of said at least one semiconductor substrate in a substantially vertical direction in said at least one mold cavity so that said flowable material flows around said portions of said inner surface of said transfer mold abutting with said conductive elements on said at least one surface of said at least one semiconductor substrate.

2. (Previously Amended) The method according to claim 1, wherein said providing said transfer mold comprises configuring said transfer mold so that said at least one cavity is substantially vertically oriented with at least one gate at a lower portion of the transfer mold and at least one vent at an upper portion of the transfer mold.

3. (Previously Amended) The method according to claim 2, wherein said introducing said flowable material comprises: substantially filling said at least one cavity in said substantially vertical direction.

4. (Previously Amended) The method according to claim 3, wherein said substantially filling said at least one cavity comprises:

introducing said flowable material through said at least one gate until a single flow front of said flowable material contacts said at least one vent at said upper portion of said at least one cavity.

5. (Previously Amended) The method according to claim 2, wherein said positioning said at least one substrate further comprises:

positioning said at least one semiconductor substrate substantially vertically.

6. (Previously Amended) The method according to claim 5, wherein said introducing said flowable material comprises:

filling said at least one cavity until a single flow front of said flowable material contacts said at least one vent.

7. (Previously Amended) The method according to claim 6, wherein said filling said at least one cavity with said flowable material comprises:

at least partially encapsulating said at least one semiconductor substrate.

8. The method according to claim 1, wherein said introducing said flowable material in said substantially vertical direction comprises:

inducing a substantially uniform flow front.

9. (Previously Amended) The method according to claim 1, wherein said introducing said flowable material comprises introducing said flowable material onto a substantially vertically oriented surface of said at least one semiconductor substrate.

10. (Previously Amended) The method according to claim 1, wherein said introducing said flowable material onto said at least one surface of said at least one substrate in said substantially vertical direction comprises:
substantially preventing voids in said flowable material.

11. (Previously Amended) The method according to claim 1, wherein said providing said at least one substrate comprises:
providing an assembly including said at least one semiconductor substrate.

13. (Previously Amended) The method according to claim 11, wherein said providing said assembly comprises:
providing said assembly with said at least one semiconductor substrate comprising at least one semiconductor die having bond pads thereon, said at least one semiconductor die including conductive structures protruding from said bond pads.

16. (Previously Amended) The method according to claim 1, wherein said providing said at least one semiconductor substrate comprises:
providing at least one individual semiconductor die.

17. (Previously Amended) The method according to claim 16, wherein said providing said at least one individual semiconductor die comprises:
providing said at least one individual semiconductor die with conductive structures protruding therefrom to abut with said portions of said at least one cavity.

18. (Previously Amended) The method according to claim 1, wherein said providing said at least one semiconductor substrate comprises:
providing a large-scale semiconductor substrate.

19. (Previously Amended) The method according to claim 18, wherein said providing said large-scale semiconductor substrate comprises:
providing a plurality of semiconductor dice interconnected to each other, each of said plurality comprising at least one of bond pads and conductive structures protruding from said bond pads.

20. The method according to claim 18, wherein said providing said large-scale substrate comprises:
providing at least a portion of a wafer.

21. (Previously Amended) The method according to claim 1, wherein said introducing said flowable material includes capillary action acting on said flowable material.

22. (Previously Amended) The method according to claim 1, wherein said introducing said flowable material includes positive pressure acting on said flowable material.

23. (Previously Amended) The method according to claim 1, wherein said introducing said flowable material includes negative pressure acting on said flowable material.

24. (Previously Amended) The method according to claim 1, wherein said providing said transfer mold comprises configuring said portions of said inner surface of said transfer mold to comprise protrusions to abut with said conductive element on said at least one surface of said at least one semiconductor substrate so that said flowable material partially covers said at least one surface of said at least one semiconductor substrate.

25. (Previously Amended) The method according to claim 1, wherein said providing said at least one semiconductor substrate comprises providing said at least one semiconductor substrate having said at least one surface with conductive structures protruding therefrom, and wherein said providing said transfer mold comprises configuring each portion of said portions of said inner surface of said transfer mold to comprise a recess to at least partially receive a corresponding one of said conductive structures so that said flowable material partially covers said conductive structures.

51. (Previously Amended) A method for encapsulating a substrate that substantially prevents voids in an encapsulant, the method comprising:
providing a transfer mold having an inner surface defining at least one mold cavity;
providing at least one semiconductor substrate having at least one surface with conductive elements thereon and a back surface thereof;
positioning said at least one semiconductor substrate in said at least one mold cavity of said transfer mold so that portions of said inner surface of said transfer mold abut with said conductive elements of said at least one surface of said at least one semiconductor substrate and another portion of said inner surface abuts with said back surface of said at least one semiconductor substrate; and
introducing a flowable material onto at least one surface of said at least one substrate in an upward, non-horizontal direction in said at least one mold cavity so that said flowable material flows around said portions of said inner surface of said transfer mold abutting with said conductive elements on said at least one surface of said at least one substrate.

52. (Previously Amended) The method according to claim 51, wherein said providing said transfer mold comprises configuring said transfer mold so that said at least one cavity is non-horizontally oriented with at least one gate at a lower portion of the transfer mold and at least one vent at an upper portion of the transfer mold.

53. (Previously Amended) The method according to claim 52, wherein said introducing said flowable material comprises:
substantially filling said at least one cavity in a non-horizontal direction.

54. (Previously Amended) The method according to claim 53, wherein said substantially filling said at least one cavity comprises:
introducing said flowable material through said at least one gate until a single flow front of said flowable material contacts said at least one vent at said upper portion of said at least one cavity.

55. The method according to claim 52, wherein said positioning said at least one substrate further comprises:
positioning said at least one substrate substantially vertically.

56. (Previously Amended) The method according to claim 55, wherein said introducing said flowable material comprises:
filling said at least one cavity until a single flow front of said flowable material contacts said at least one vent.

57. (Previously Amended) The method according to claim 56, wherein said filling said at least one cavity with said flowable material comprises:
at least partially encapsulating said at least one substrate.

58. (Previously Amended) The method according to claim 51, wherein said introducing said flowable material in said upward, non-horizontal direction comprises:
inducing a substantially uniform flow front.

59. (Previously Amended) The method according to claim 51, wherein said introducing said flowable material comprises permitting said flowable material to flow onto a substantially vertically oriented surface of said at least one semiconductor substrate.

60. (Previously Amended) The method according to claim 51, wherein said introducing said flowable material onto at least one surface of said at least one substrate in said upward, non-horizontal direction comprises:
substantially preventing voids in said flowable material.

61. (Previously Amended) The method according to claim 51, wherein said providing said at least one substrate comprises:
providing an assembly including said at least one semiconductor substrate.

63. (Previously Amended) The method according to claim 61, wherein said providing said assembly comprises:
providing said assembly with said at least one semiconductor substrate including at least one semiconductor die having bond pads thereon, said at least one semiconductor die including conductive structures protruding from said bond pads.

66. (Previously Amended) The method according to claim 51, wherein said providing said at least one semiconductor substrate comprises:
providing at least one individual semiconductor die.

67. (Previously Amended) The method according to claim 66, wherein said providing said at least one individual semiconductor die comprises:
providing said at least one individual semiconductor die with conductive structures protruding therefrom to abut with said portions of said at least one cavity.

68. (Previously Amended) The method according to claim 51, wherein said providing said at least one semiconductor substrate comprises:
providing a large-scale semiconductor substrate.

69. (Previously Amended) The method according to claim 68, wherein said providing said large-scale semiconductor substrate comprises:
providing a plurality of semiconductor dice interconnected to each other, each of said plurality comprising at least one of bond pads and conductive structures protruding from said bond pads.

70. The method according to claim 68, wherein said providing said large-scale substrate comprises:
providing at least a portion of a wafer.

71. (Previously Amended) The method according to claim 51, wherein said introducing said flowable material includes capillary action acting on said flowable material.

72. (Previously Amended) The method according to claim 51, wherein said introducing said flowable material includes positive pressure on said flowable material.

73. (Previously Amended) The method according to claim 51, wherein said introducing said flowable material includes negative pressure on said flowable material.

74. (Previously Amended) The method according to claim 51, said providing said transfer mold comprises configuring said portions of said inner surface of said transfer mold to comprise protrusions to abut with said conductive element on said at least one surface of said at least one semiconductor substrate so that said flowable material partially covers said at least one surface of said at least one semiconductor substrate.

75. (Previously Amended) The method according to claim 51, wherein said providing said at least one semiconductor substrate comprises providing said at least one semiconductor substrate having said at least one surface with conductive structures protruding therefrom, and wherein said providing said transfer mold comprises configuring each portion of said portions of said inner surface of said transfer mold to comprise a recess to at least partially receive a corresponding one of said conductive structures so that said flowable material partially covers said conductive structures.